

Amendments to the Specification

Please replace the abstract with the following amended abstract:

~~In order to further develop a A system (100) and a method for recording, transmitting and analyzing data and information (D and D*, resp. respectively) accrued from, in particular low frequency, electromagnetic radiation, where the electromagnetic radiation originates from at least one impulse source of natural and/or artificial origin, in particular from at least one atmospheric discharge (P) or from at least one transmitter (K), such that a precise characterization of the impulse source, for example a reliable differentiation between cloud-ground lightning (C{cloud}G{round}) and cloud-cloud lightning (=I{ntra}C{cloud} within a cloud, or C{cloud}-C{cloud} between clouds) is provided. provided for, it is proposed to localize~~

- ~~— the altitude (H) of the impulse source, in particular the emission altitude or the broadcast altitude, and/or~~
- ~~- the directionality (C), in particular the spatial direction path, of the impulse emission or impulse broadcast caused by the impulse source,~~

The altitude of the impulse source, and/or the directionality, in particular the spatial direction path of the impulse emission or broadcast caused by the impulse source, are localized by determining the difference between the arrival time of the signal (S) at the measuring station (20) located closest to the impulse source and the arrival time of the signal (S*) at at least one, preferably at

least two, measuring stations ~~(20*)~~ which are not located closest to said impulse source.

~~Fig. 1~~

Please replace paragraph [0146] with the following amended paragraph:

[0146] The station electronic system 40 which is arranged in the housing of the measuring ~~station~~ stations 20 and 20*, ~~resp.~~, initially comprises an amplifier 42 for the low-noise amplification of the signals S and S* respectively coming from the antenna body 30. Downstream from the amplifier 42 is a filter stage 44. The signal S'' which is filtered using the filter unit 44 is thus subjected in the unit 46 to a signal digitalization.

Please replace paragraph [0147] with the following amended paragraph:

[0147] Using the low-noise amplifier 42 and the filter stage 44, a flattening and optimization method can be conducted on the signals S and S* ~~resp.~~, which in the light of the problem described in the following is of significant advantage.

Please replace paragraph [0149] with the following amended paragraph:

[0149] The signals S and S* ~~resp.~~, which reach the respective sensors 20 and 20* in practise are however usually

- small,

- with their own, often complex and irregular structures, and
- overlaid with noise elements.

Please replace paragraph [0153] with the following amended paragraph:

[0153] This makes it more difficult to obtain a clear time identification, in particular, when the ~~signal~~ signals S and S*, ~~resp., is~~ are weak and close to the lower detection threshold.

Please replace paragraph [0159] with the following amended paragraph:

[0159] Furthermore, with the system 100 according to FIG. 1 in connection with FIG. 2A, not only the highest peak of a ~~signal~~ signals S and S*, ~~resp., is~~ are subjected to the flattening and optimization method described above; rather, the entire signal structure which lies above the noise threshold is analyzed in accordance with this flattening and optimization method. In this way, for each individual signal S and S* ~~resp.,~~ in dependence on the total impulse form actually present, a plurality of time or structural information can be provided.

Please replace paragraph [0169] with the following amended paragraph:

[0169] If the specific trigger condition for a component of the ~~signal~~ signals S and S*, ~~resp.,~~ is fulfilled, the GPS event time is frozen in a hardware register. After the

digitalization is ended, the magnetic field vector is calculated from the ratio of the time-dependent magnetic field progressions and its time-dependent amount, i.e. the current Sferics position, is shown on a screen or monitor 72.

Please replace paragraph [0170] with the following amended paragraph:

[0170] With an uncertainty of 180 degrees, the magnetic field vector gives the incidence direction of the signal S and S* respectively. If the time progression of the electrical field amplitude is also available, the incidence direction can be relatively accurately determined. This incidence direction is stored together with the trigger time point and the time progression of the magnetic field amount on the central data server 70. In addition, a F[ast]F[ourier]T[ransformation] 74 of the ~~signal~~ signals S and S*, ~~resp.,~~ is conducted, with an online display.

Please replace paragraph [0174] with the following amended paragraph:

[0174] With this second recording system 40', both the respectively initial events of a possible sequence of partial lightning strokes can be recorded over a time period of 512 microseconds, and the total time structure of partial impulses within a lightning stroke P can be recorded. The recording of the strong signals S and S* ~~resp.,~~ which originate in the close range is therefore conducted simultaneously in two different time windows with a different time ~~resolution:~~ resolution.

Please replace paragraph [0175] with the following amended paragraph:

[0175] Alongside the standard time window of 512 microseconds (cf. first recording unit 40), which generally records in a high resolution the ~~signal~~ signals S and S* ~~resp.~~, which ~~is~~ are generated by the first partial lightning stroke (=so-called "First Return Stroke"), the time progression of the individual strokes is recorded in a 655 millisecond-long time window (time sampling points of sixteen kilobits).

Please replace paragraph [0178] with the following amended paragraph:

[0178] Using the communication unit 76, all the necessary data and information D and D*, ~~resp.~~, from the respective external measuring stations 20 and 20* can be retrieved and stored on the central server 70. For certain standard data, this occurs fully automatically at specified time points; specific data records can be transferred manually.

Please replace paragraph [0215] with the following amended paragraph:

[0215] FIG. 7B shows the ~~distribution~~ distribution (=the number plotted on the right axis) of the emission altitudes H, measured in kilometers, and plotted on the vertical axis, of 951 lightning strokes which are mapped in an ambit of up to approximately sixty kilometers around three measuring stations. An emission maximum is shown in an altitude H of just below ten kilometers.

Please replace paragraph [0275] with the following amended paragraph:

[0275] In addition to this two-dimensional location mapping and/or to this three-dimensional location mapping or directionality mapping, according to the present invention, at least one of the measuring stations 20 and 20*,~~resp.,~~ can also be adjusted or calibrated, which leads to improved time recording.